JANUARY TO APRIL DISTRIBUTION OF THE COMMON SHRIMP ON THE SOUTH ATLANTIC CONTINENTAL SHELF

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United States Department of the Interior
Fish and Wildlife Service, John L. Farley, Director

JANUARY TO APRIL DISTRIBUTION OF THE COMMON SHRIMP ON THE SOUTH ATLANTIC CONTINENTAL SHELF

By

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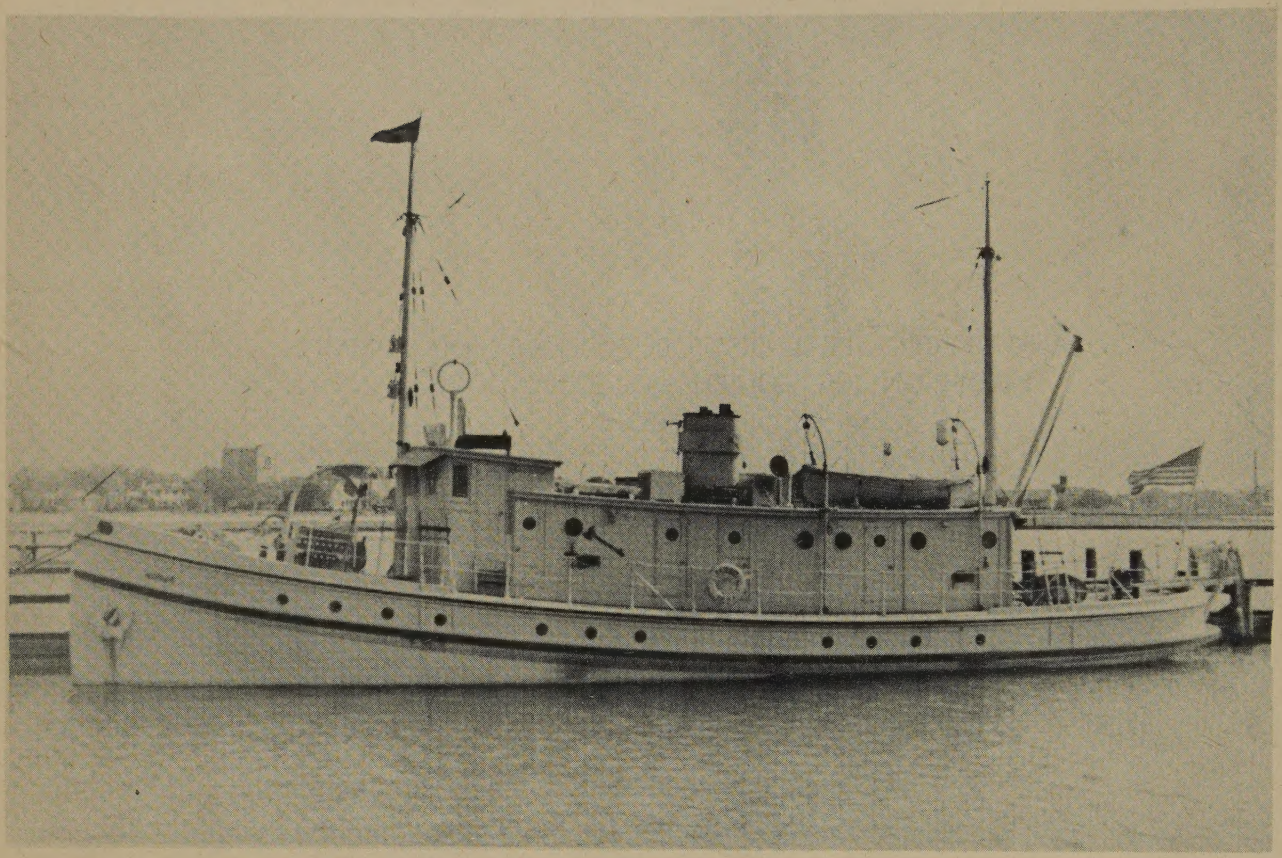

M/V Pelican of the U.S. Fish and Wildlife Service

ABSTRACT

The results of 431 trawl hauls with a 10-foot try net, made on the Continental Shelf along the South Atlantic Coast of the United States, are summarized with respect to distribution of Peneid shrimp. It appears unlikely that commercial concentrations of the common shrimp (Penaeus setiferus) or of the grooved or brown shrimps (P. aztecus and P. duorarum) occur on the Shelf outside the present limits of the fishery. The rock shrimp (Eusicyonia brevirostris) was taken in small numbers over a wide area and largely between 10 and 40 fathoms.

JANUARY TO APRIL DISTRIBUTION OF THE COMMON SHRIMP ON THE SOUTH ATLANTIC CONTINENTAL SHELF

From January to April 1940 the U. S. Fish and Wildlife Service conducted exploratory fishing on the Continental Shelf along the South Atlantic Coast of the United States from Cape Hatteras, N.C., to Fort Pierce, Fla. The purpose of the work was to define the distributional limits of the common or white shrimp, Penaeus setiferus (Linn.), and other species of peneid shrimp of possible commercial value. Milton J. Lindner, Edgar M. Smith, and Edgar L. Raymond, Master of the Pelican, contributed much in the accomplishment of this work.

The results of this study have previously been made available through informal channels to anyone interested. Lindner and Anderson (1956) make reference to some general results but give no details. Increased interest in the possibility of locating shrimp in commercial quantities in new areas on the Continental Shelf beyond the conventional limits of the present fishery along the South Atlantic Coast makes the publication of these records from the earlier survey desirable even though the results are negative.

Vessel and gear

Work was conducted from the Service's M/V Pelican, a 75-foot vessel equipped with a level-winding trawling winch and 5,000 feet of 1/2-inch steel cable operated over a roller on the center stern of the vessel. Trawling was possible in depths up to 200 fathoms, but few hauls were made in depths greater than 100 fathoms. A small winch on the vessel's bow was employed for handling Nansen bottles, bottom grabs and sounding gear. Since the activities were exploratory, a 10-foot try-net, in reality a small otter trawl, was used exclusively.

The try-net is commonly used by commercial fishermen to locate concentrations of shrimp before setting the larger nets. It operates in the same manner as commercial trawls and proved to be an effective device for sampling an area in previous surveys of the Gulf Coast conducted by the same vessel and crew. Failure to catch shrimp is therefore interpreted with confidence as indicating the absence of shrimp.

Operations

Operations consisted of a series of 30-minute hauls with the try-net usually on a zig-zag course between the shore and the 100-fathom line, but sometimes along a depth contour. In working these trawl lines the vessel was not stopped while the trawl was being hauled in, emptied, and put over again, but continued on course at slow speed. This system of trawling resulted in a continuous series of trawl hauls, with breaks usually representing the time required for taking up the trawl and setting it out again. In waters of 10 to 12 fathoms, the entire process of hauling up, emptying, and putting the trawl into operation again was accomplished in about 7 to 10 minutes. In deeper water the time required was in proportion to the depth. A trawl was dragged 3 to 3.5 miles during the 30-minute haul period, depending on weather and currents.

In addition to data on shrimp, a record of fish captured was maintained. Collections of the shrimp and fish, and a large collection of invertebrates, including material taken by the Pelican in the north-

ern Gulf of Mexico, are deposited in the U.S. National Museum.

Starting in January 1940, near Fort Pierce, Fla., a series of zig-zag trawl lines, extending from just off the beaches to the 100-fathom line, was made up the coast to Cape Hatteras, N.C. A second series was made from Cape Hatteras south to about Cape Canaveral, Fla., over areas not covered by the first run. From January to April, 431 trawl hauls were made, representing about 1,300 miles of actual trawling. Approximate locations of the individual hauls are shown in figure 1.

Results

Although hundred of hauls were made over bottom lying between the outer limits of the shrimp fishery (at 5 to 10 fathoms) and the 100-fathom contour, not a single specimen of the common shrimp (P. setiferus) was taken outside the limits of the fishery. Only one specimen of the grooved or brown shrimps (P. aztecus Ives and P. duorarum Burkenroad), which are commercially important in the area, was taken in water deeper than 10 fathoms (and this at 13 fathoms).

Several other species of peneid shrimps, not utilized commercially, were taken between the outer limits of the fishery and the 100-fathom line. Among them were species of the genera Eusicyonia, Trachypeneus, Solenocera, Penaeopsis, and Parapenaeus. The rock shrimp, Eusicyonia brevirostris (Stimpson), was taken most frequently, but not in great numbers. The general areas in which rock shrimp were taken are shown in figure 1 as shaded areas between about 10 and 40 fathoms. A complete record of the trawl hauls and shrimp captured is shown in table 1. The few specimens of Solenocera, Penaeopsis, and Parapenaeus captured are not included in the table.

From these data it appears unlikely that concentrations of the common or the grooved shrimps occur on the middle and outer Continental Shelf between Cape Lookout, N. C., and Fort Pierce, Fla., during the spring months. It seems likely that this limitation of offshore range is due primarily to lack of suitable bottoms in these areas of the Shelf. The bottom outside the limits of the shrimp fishery to the 100-fathom line from Cape Lookout to Fort Pierce was found to consist mainly of sand, shell, and coral, over that part of the Shelf covered by the study. These bottom types are unsuitable for the common shrimp which prefers mud bottoms. In the northern Gulf of Mexico the common shrimp was taken at a maximum depth of 35 fathoms and the grooved shrimps down to 90 fathoms, usually on muddy bottom.

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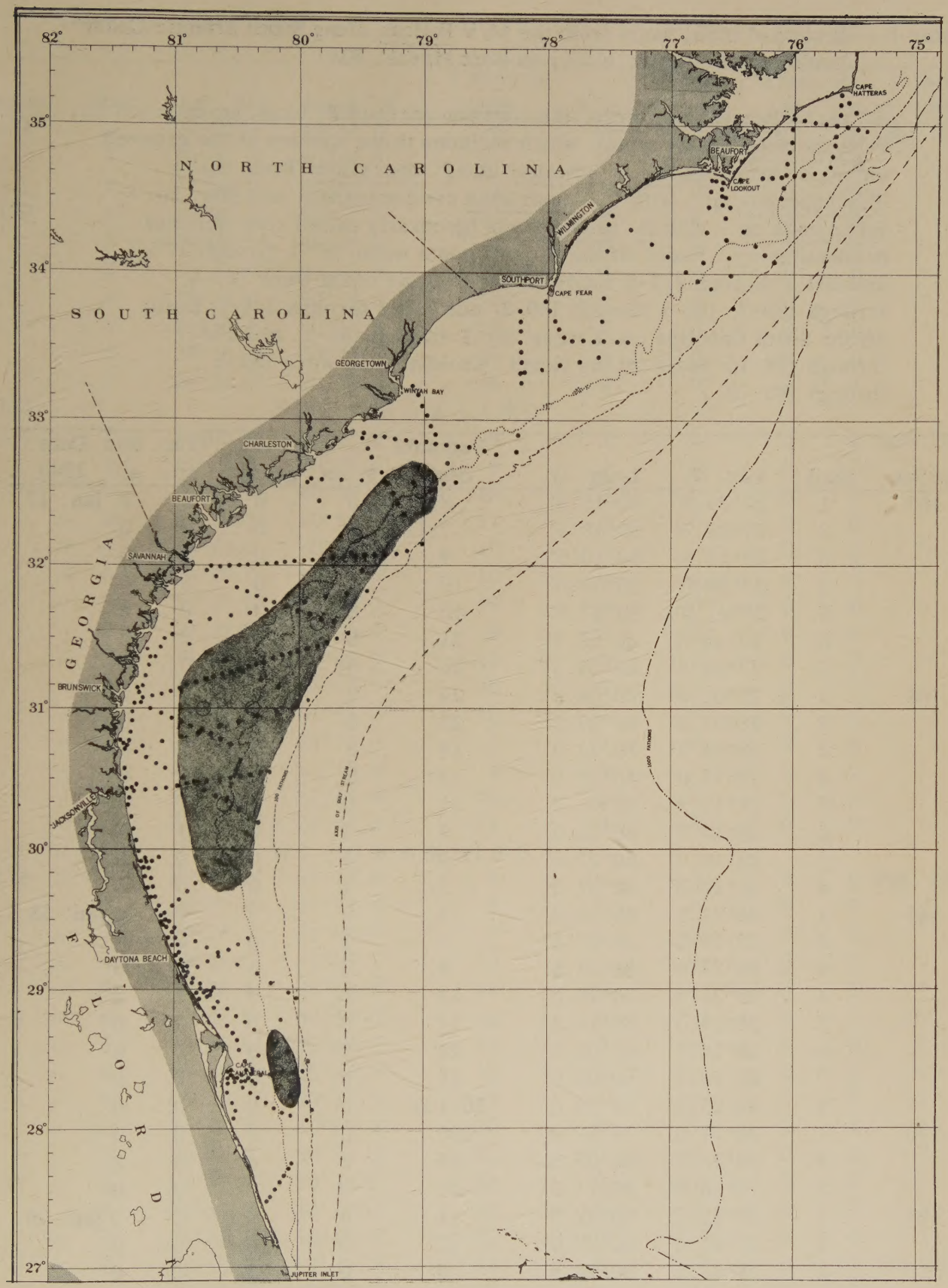

Figure 1.--South Atlantic Coast with approximate position of trawl hauls shown as large dots. The 20-, 100-, and 1,000-fathom contours are indicated. Approximate axis of the Gulf Stream is shown by arrows.

Table 1.--Record of trawl hauls from the M/V Pelican along South Atlantic Coast from Cape Hatteras, N.C., to Fort Pierce, Fla.

/P. set. = Penaeus setiferus, the common shrimp; P. bras. group = Penaeus brasiliensis group, which includes three species of the grooved shrimps, brasiliensis, P. aztecus, and P. duorarum; Trac. sp. = Trachypeneus sp., with T. constrictus predominating; and Eus. sp. = Eusicyonia sp., with E. brevirostris (generally called rock shrimp) predominating. Hauls off the Florida coast were 167-1 through 177-3, and 200-1 through 215-5; hauls off the Georgia coast were 177-4 through 180-7, 196-1 through 199-3, and 216-1 through 218-5; hauls off the South Carolina coast were 181-1 through 183-4, and 194-1 through 195-10; hauls off the North Carolina coast were 183-5 through 193-10./

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P. set	P. bras. group	Trac. sp.	Eus. sp.	Date 1940
167	1	27°29.5'	80°15.5'	8	0	0	0	0	Jan. 17
	2	27°33.0'	80°13.5'	7-1/2	0	0	0	0	"
	3	27°36.5'	80°10.5'	9	0	0	0	0	"
	4	27°39.0'	80°09.0'	10	0	0	0	0	"
	5	27°41.0'	80°07.5'	16	0	0	0	0	"
	6	27°44.0'	80°05.5'	21	0	0	0	0	"
	7	27°46.5'	80°03.5'	23	0	0	0	0	"
168	1	28°05.0'	80°04.0'	24	0	0	0	0	"
	2	28°07.0'	80°07.5'	22	0	0	0	0	"
	3	28°09.5'	80°12.0'	18	0	0	0	0	"
	4	28°12.0'	80°17.0'	12	0	0	0	0	"
	5	28°14.5'	80°21.0'	11	0	0	0	0	"
	6	28°16.5'	80°24.5'	9	1	0	0	0	"
	7	28°18.0'	80°27.5'	9	0	0	0	0	"
	8	28°20.0'	80°31.5'	7	2	0	0	0	"
169	1	28°22.5'	80°32.0'	7	0	0	0	0	Jan. 18
	2	28°23.0'	80°27.5'	7	0	0	0	0	"
	3	28°23.0'	80°23.5'	9	0	0	0	0	"
	4	28°23.5'	80°19.0'	12	0	0	0	0	"
	5	28°24.0'	80°14.5'	17	0	0	0	0	"
	6	28°24.5'	80°08.5'	24	0	0	0	0	"
	7	28°24.5'	80°03.0'	45	0	0	0	0	"
	8	28°25.0'	79°58.0'	50-100	0	0	0	0	"
170	1	28°27.0'	79°57.0'	100	0	0	0	0	"
	2	28°33.0'	80°05.0'	35	0	0	0	0	"
	3	28°35.5'	80°11.0'	20	0	0	0	0	"
171	1	28°42.0'	80°22.5'	11	0	0	0	0	Jan. 19
	2	28°45.0'	80°27.0'	10	0	0	0	0	"
	3	28°47.5'	80°30.5'	9	0	0	0	0	"
	4	28°50.5'	80°34.5'	11	0	0	0	0	"
	5	28°54.0'	80°39.0'	9	0	0	0	1	"

Table 1.-- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P.set.	P.bras. group	Trac. sp.	Eus. sp.	Date 1940
171	6	28°57.0'	80°43.0'	9	0	0	0	0	Jan. 19
	7	29°00.0'	80°47.5'	11	0	0	0	0	"
	8	29°03.0'	80°51.0'	11	7	0	0	0	"
172	1	29°06.5'	80°52.0'	10	2	0	0	0	"
	2	29°09.0'	80°48.0'	8	0	0	0	0	"
	3	29°11.0'	80°43.0'	12	0	0	0	0	"
	4	29°14.0'	80°38.0'	14	0	0	0	0	"
	5	29°16.5'	80°33.5'	15	0	0	0	0	"
	6	29°18.5'	80°29.5'	17	0	0	0	0	"
	7	29°21.0'	80°25.0'	16	0	0	0	1	"
173			NO TRAWLING						
174	1	29°08.0'	80°56.0'	9	3	0	0	0	Jan. 20
	2	29°12.5'	80°57.0'	9	0	0	0	0	"
	3	29°16.5'	80°58.0'	10	0	0	0	0	"
	4	29°19.5'	80°59.0'	11	0	0	0	0	"
	5	29°22.0'	80°59.5'	10	0	0	0	0	"
	6	29°25.0'	81°01.5'	10	0	0	0	0	"
	7	29°27.0'	81°04.5'	10	0	0	0	0	"
	8	29°31.5'	81°06.5'	9	0	0	0	0	"
	9	29°35.5'	81°08.0'	10	0	0	0	0	"
	10	29°40.0'	81°09.5'	10	0	0	0	0	"
	11	29°44.0'	81°11.0'	10	0	0	0	0	"
	12	29°48.0'	81°12.0'	9	0	0	0	0	"
	13	29°52.0'	81°13.0'	8	5	0	0	0	"
	14	29°54.5'	81°11.0'	10	0	0	0	0	"
	15	29°56.5'	81°07.0'	11	0	0	0	0	"
175			NO TRAWLING						
176	1	30°25.0'	81°18.5'	8	10	0	0	0	Jan. 25
	2	30°25.0'	81°13.5'	8	0	0	0	0	"
	3	30°26.0'	81°08.0'	8	0	0	0	0	"
	4	30°26.0'	81°03.5'	10	0	0	0	0	"
	5	30°26.5'	80°58.5'	13	0	0	0	0	"
	6	30°27.0'	80°54.0'	14	0	0	0	1	"
	7	30°28.0'	80°48.5'	15	0	0	0	0	"
	8	30°28.0'	80°43.5'	18	0	0	0	0	"
	9	30°29.0'	80°37.5'	19	0	0	0	0	"
	10	30°29.5'	80°33.0'	20	0	0	0	1	"
	11	30°30.0'	80°28.0'	21	0	0	0	0	"
177	1	30°30.5'	80°24.0'	22	0	0	0	0	"
	2	30°31.0'	80°20.0'	22	0	0	0	0	"
	3	30°31.5'	80°15.0'	23	0	0	0	0	"
	4	30°45.0'	80°34.0'	19	0	0	0	0	Jan. 26
	5	30°46.5'	80°38.0'	17	0	0	0	0	"
	6	30°48.5'	80°42.5'	16	0	0	0	2	"

Table 1.--(Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P. set.	P. bras. group	Trac. sp.	Eus. sp.	Date 1940
177	7	30°50.5'	80°47.5'	14	0	0	0	0	Jan. 26
	8	30°52.5'	80°51.5'	12	0	0	0	0	"
	9	30°54.5'	80°56.0'	10	0	0	0	0	"
	10	30°56.0'	81°00.5'	10	0	0	0	0	"
	11	30°59.0'	81°06.0'	9	0	0	0	0	"
	12	31°01.0'	81°10.5'	7	0	0	0	0	"
	13	31°02.5'	81°15.5'	6	12	0	0	0	"
178	1	31°05.0'	81°14.5'	5	4	0	14	0	Jan. 31
	2	31°06.0'	81°09.0'	6	0	0	0	0	"
	3	31°07.5'	81°05.0'	7	1	0	0	1	"
	4	31°08 5'	81°00.0	8	0	0	0	0	"
	5	31°10.0'	80°56.0	8	0	0	0	1	"
	6	31°11.0'	80°52.0'	9	0	0	0	0	"
	7	31°12.0'	80°48.0'	11	0	0	0	0	"
	8	31°13.0	80°44.0'	11	0	0	0	0	"
	9	31°14.0'	80°40.0'	12	0	0	0	0	"
	10	31°15.0'	80°37.0'	12	0	0	0	1	"
	11	31°16.0'	80°33.0'	15	0	0	0	1	"
	12	31°17.0'	80°29.0'	18	0	0	0	0	"
	13	31°18.0'	80°25.0'	19	0	0	0	0	"
	14	31°19.0'	80°21.0'	20	0	0	0	0	"
	15	31°20.0'	80°17.0'	21	0	0	0	0	"
	16	31°21.5'	80°12.5'	21	0	0	0	0	"
	17	31°22.5'	80°08.5'	23	0	0	0	1	"
	18	31°23.5'	80°04.5'	22	0	0	0	0	"
179	1	31°24.5'	80°01.0'	23	0	0	0	0	Feb. 1
	2	31°26.0'	79°56.0'	24	0	0	0	0	"
	3	31°27.0'	79°51.5'	25	0	0	0	0	"
	4	31°28.5'	79°46.0'	25	0	0	0	0	"
	5	31°29.5'	79°41.5'	45	0	0	0	0	"
	6	31°33.0'	79°36.0'	100	0	0	0	0	"
	7	31°36.5'	79°43.0'	40	0	0	0	1	"
	8	31°38.5'	79°49.0'	25	0	0	0	1	"
	9	31°40.0'	79°55.0'	21	0	0	0	0	"
	10	31°41.5'	80°01.0'	18	0	0	0	0	"
	11	31°43.5'	80°06.5'	18	0	0	0	0	"
	12	31°44.5'	80°11.5'	17	0	0	0	0	"
180	1	31°46.0'	80°16.0'	13	0	0	0	0	Feb. 2
	2	31°48.0'	80°20.5'	11	0	0	0	0	"
	3	31°50.0'	80°25.0'	11	0	0	0	0	"
	4	31°52.0'	80°29.5'	9	0	0	0	0	"
	5	31°53.5'	80°34.5'	8	0	0	0	1	"
	6	31°55.5'	80°39.0'	7	0	0	0	0	"
	7	31°57.5'	80°44.0'	6	0	0	0	0	"

Table 1.-- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P.set.	P.bras. group	Trac. sp.	Eus. sp.	Date 1940
181	1	31°58.5'	80°44.0'	6-1/2	0	0	0	0	Feb. 3
	2	31°59.0'	80°39.0'	7	0	0	0	0	"
	3	31°59.5'	80°34.0'	8	0	0	0	0	"
	4	31°59.5'	80°29.5'	10	0	0	0	0	"
	5	32°00.0'	80°25.0'	10	0	0	0	0	"
	6	32°00.5'	80°20.5'	11	0	0	0	0	"
	7	32°01.0'	80°16.0'	11	0	0	0	0	"
	8	32°01.0'	80°11.5'	12	0	0	0	0	"
	9	32°01.5'	80°07.5'	12	0	0	0	0	"
	10	32°02.0'	80°03.0'	12	0	0	0	0	"
	11	32°02.0'	79°59.0'	14	0	0	0	0	"
	12	32°02.5'	79°54.0'	15	0	0	0	0	"
	13	32°03.0'	79°49.5'	14	0	0	0	0	"
	14	32°03.5'	79°45.5'	16	0	0	0	0	"
182	1	32°04.0'	79°41.0'	18	0	0	0	1	Feb. 4
	2	32°04.0'	79°36.0'	22	0	0	0	2	"
	3	32°04.5'	79°30.5'	22	0	0	0	4	"
	4	32°05.0'	79°25.5'	28	0	0	0	0	"
	5	32°05.5'	79°20.5'	37	0	0	0	0	"
	6	32°06.0'	79°14.0'	60	0	0	0	0	"
	7	32°06.5'	79°07.5'	60-100	0	0	0	0	"
	8	32°09.0'	79°02.0'	175-100	0	0	0	0	"
	9	32°21.0'	79°10.0'	30	0	0	0	0	"
	10	32°26.0'	79°13.0'	22	0	0	0	0	"
	11	32°30.0'	79°16.0'	18	0	0	0	0	"
	12	32°34.0'	79°18.5'	17	0	0	0	0	"
	13	32°38.0'	79°21.0'	12	0	0	0	0	"
	14	32°45.0'	79°25.5	7	0	0	0	0	Feb. 12
	15	32°49.0'	79°28.0	6	0	0	0	0	"
	16	32°53.0'	79°30.0'	5	0	0	4	0	"
	17	32°54.5'	79°28.5'	5	0	0	15	0	"
	18	32°53.5'	79°23.5'	5-1/2	0	0	0	0	
	19	32°53.0'	79°19.0'	6	0	0	0	0	"
	20	32°53.0'	79°14.0'	8	0	0	0	0	"
	21	32°52.5'	79°09.0'	11	0	0	0	0	"
	22	32°52.0'	79°04.0'	11	0	0	0	0	"
	23	32°51.5'	78°59.0'	14	0	0	0	0	"
	24	32°50.5'	78°53.5'	14	0	0	0	0	"
	25	32°50.0'	78°48.5'	17	0	0	0	0	"
	26	32°49.5'	78°43.0'	18	0	0	0	0	"
	27	32°49.0'	78°37.0'	20	0	0	0	0	"
183	1	32°48.0'	78°29.5'	24-1/2	0	0	0	0	Feb. 13
	2	32°47.0'	78°23.5'	25	0	0	0	0	"

Table 1.-- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P. set.	P. bras. group	Trac. sp.	Eus. sp.	Date 1940
183	3	32°47.0'	78°15.0'	90	0	0	0	0	Feb. 13
	4	32°53.5'	78°13.5'	35	0	0	0	0	"
	5	33°15.5'	78°13.5'	16	0	0	0	0	"
	6	33°20.0'	78°13.5'	15	0	0	0	1	"
	7	33°24.0'	78°13.5'	14	0	0	0	0	"
	8	33°28.5'	78°13.5'	13	1	0	1	0	"
	9	33°33.0'	78°13.5'	12	0	0	0	0	"
	10	33°36.5'	78°13.5'	10	0	0	0	0	"
	11	33°40.0'	78°13.5'	9	0	0	0	0	
	12	33°45.0'	78°13.5'	8	0	0	0	0	"
184	1	33°49.0'	78°02.0'	6	0	0	0	0	Feb. 15
	2	33°45.0'	77°59.0'	6	0	0	0	0	"
	3	33°41.5'	77°56.5'	5	0	0	1	0	"
	4	33°38.0'	77°54.0'	7	0	0	0	0	"
	5	33°34.5'	77°52.0'	11	0	0	0	0	"
	6	33°33.0'	77°48.0'	10	0	0	0	0	"
	7	33°33.0'	77°42.0'	9	0	0	0	0	"
	8	33°33.0'	77°38.0'	7	0	0	0	0	"
	9	33°33.0'	77°32.0'	14	0	0	0	0	"
	10	33°33.0'	77°27.5'	15	0	0	0	0	"
	11	33°33.0'	77°22.5'	17	0	0	0	0	"
185	1	33°33.5'	76°49.0'	75-100	0	0	0	0	Feb. 16
	2	34°03.5'	76°44.0'	20	0	0	0	0	"
	3	34°17.0'	76°43.0'	16	0	0	0	0	"
	4	34°28.0'	76°42.0'	11	0	0	0	0	"
	5	34°33.0'	76°41.0'	9	0	0	0	0	"
	6	34°37.5'	76°41.0'	8	0	0	2	0	"
186	1	34°38.0'	76°39.5'	8	0	0	0	0	Feb. 25
	2	34°34.5'	76°37.0'	9	0	0	0	0	"
	3	34°30.5'	76°34.0'	9	0	0	0	0	"
	4	34°26.5'	76°31.5'	9	0	0	0	0	"
187	1	34°16.5'	76°24.0'	17	0	0	1	1	Feb. 27
	2	34°11.0'	76°18.0'	22	0	0	0	0	"
	3	34°07.0'	76°14.0'	50-60	0	0	0	0	"
	4	34°05.0'	76°10.0'	82-100	0	0	0	0	"
188	1	34°31.0'	76°06.0'	22	0	0	0	0	Mar. 1
	2	34°35.5'	76°05.0'	20	0	0	0	0	"
	3	34°40.0'	76°04.0'	20	0	0	0	0	"
	4	34°44.5'	76°03.0'	19	0	0	0	0	"
	5	34°49.0'	76°02.5'	16	0	0	0	0	"
	6	34°53.5'	76°01.5'	13	0	0	0	0	"
	7	34°58.5'	76°01.0'	11	0	0	2	0	"
	8	35°02.5'	76°00.0'	7	0	0	1	0	"
	9	35°01.5'	75°55.5'	12	0	0	0	0	"
	10	35°01.0'	75°50.5'	12	0	0	0	0	"

Table 1.-- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P. set.	P. bras. group	Trac. sp.	Eus. sp.	Date 1940
189	1	35°00.5'	75°45.6'	13	0	0	2	0	Mar. 2
	2	34°59.5'	75°40.0'	17	0	0	0	0	"
	3	34°58.5'	75°33.5'	20	0	0	0	0	"
	4	34°58.0'	75°28.5'	28	0	0	0	0	"
	5	34°57.5'	75°24.0'	40	0	0	0	0	"
	6	35°06.5'	75°29.5'	9	0	0	0	0	"
	7	35°10.5'	75°33.5'	8	0	0	0	0	"
	8	35°13.0'	75°36.5'	6	0	0	0	0	"
	9	35°10.0'	75°37.0'	8	0	0	0	0	"
190	1	35°06.5'	75°37.5'	11	0	0	0	0	"
	2	35°02.0'	75°38.0'	15	0	0	0	0	"
	3	34°57.0'	75°39.0'	20	0	0	0	0	"
	4	34°52.0'	75°39.5'	23	0	0	0	0	"
	5	34°47.0'	75°40.0'	25	0	0	0	0	"
	6	34°43.0'	75°41.0'	30	0	0	0	0	"
	7	34°41.0'	75°44.0'	37	0	0	0	0	"
	8	34°40.5'	75°49.0'	25	0	0	0	0	"
	9	34°40.0'	75°54.0'	24	0	0	0	0	"
	10	34°39.5'	75°59.0'	20	0	0	0	0	"
	11	34°39.0'	76°04.0'	19	0	0	0	0	"
191	1	34°39.0'	76°09.0'	20	0	0	0	0	Mar. 3
	2	34°38.5'	76°15.5'	16	0	0	0	0	"
	3	34°38.0'	76°25.5'	9	0	0	0	0	"
192	1	34°36.0'	76°35.0'	8	0	0	0	0	Mar. 6
	2	34°31.5'	76°34.0'	9	0	0	0	0	"
	3	34°27.0'	76°33.5'	9	0	0	0	0	"
	4	34°23.5'	76°33.0'	12	0	0	0	0	"
	5	34°13.5'	76°31.5'	18	0	0	0	0	"
	6	34°06.5'	76°30.5'	23	0	0	0	0	"
	7	33°59.5'	76°29.5'	25	0	0	0	0	"
	8	33°47.5'	76°28.5'	120	0	0	0	0	"
	9	33°53.5'	76°41.0'	22	0	0	0	0	"
	10	33°58.5'	76°48.0'	20	0	0	0	0	"
	11	34°01.0'	76°52.0'	19	0	0	0	0	Mar. 7
	12	34°07.0'	77°01.0'	15	0	0	0	0	"
	13	34°12.5'	77°10.0'	13	0	0	0	0	"
	14	34°18.5'	77°19.0'	11	0	0	0	0	"
	15	34°24.0'	77°27.5'	7	0	0	0	0	"
193	1	34°20.0'	77°30.5'	8	0	0	0	0	"
	2	34°08.5'	77°31.0'	11	0	0	0	0	"
	3	34°01.0'	77°31.5'	11	0	0	0	0	"
	4	33°50.5'	77°32.0'	14	0	0	0	0	"
	5	33°40.5'	77°32.5'	14	0	0	0	0	"
	6	33°26.0'	77°35.0'	13	0	0	0	0	Mar. 8

Table 1.-- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P.set.	P.bras. group	Trac. sp.	Eus. sp.	Date 1940
193	7	33°24.5'	77°44.0'	14	0	0	0	0	Mar. 8
	8	33°23.0'	77°54.0'	17	0	0	0	0	"
	9	33°21.5'	78°03.0'	16	0	0	0	0	"
	10	33°20.0'	78°11.5'	15	0	0	0	0	"
194	1	33°13.0'	79°06.0'	5	0	0	1	1	Mar. 9
	2	33°10.5'	79°02.5'	5	0	0	0	0	"
	3	33°06.5'	79°00.5'	6	0	0	0	0	"
	4	33°02.5'	78°58.0'	7-1/2	0	0	0	0	"
	5	32°58.5'	78°56.0'	10	0	0	0	0	"
	6	32°54.0'	78°53.5'	14	0	0	0	0	"
	7	32°42.5'	78°47.0'	17	0	0	0	0	"
	8	32°35.0'	78°43.0'	22	0	0	0	0	"
	9	32°34.0'	78°50.0'	25	0	0	0	0	"
	10	32°34.0'	79°05.0'	19	0	0	0	2	"
	11	32°34.5'	79°19.5'	17	0	0	0	1	"
	12	32°35.0'	79°29.5'	10	0	0	2	0	"
	13	32°35.0'	79°39.5'	8	0	0	8	0	"
	14	32°35.5'	79°49.5'	8	0	0	0	0	Mar. 10
	15	32°35.5'	79°55.0'	5	0	0	0	0	"
195	1	32°33.5'	79°55.5'	6	0	0	0	0	Mar. 13
	2	32°26.5'	79°50.0'	8	0	0	0	0	"
	3	32°19.0'	79°45.0'	13	0	0	0	0	"
	4	32°12.0'	79°40.0'	17	0	0	0	0	"
	5	32°04.5'	79°34.5'	23	0	0	0	0	"
	6	31°57.5'	79°29.5'	37	0	0	0	0	"
	7	31°50.5'	79°26.5'	45	0	0	0	0	"
	8	31°48.0'	79°37.5'	30	0	0	0	11	"
	9	31°46.5'	79°47.5'	24	0	0	0	7	"
	10	31°45.5'	79°56.5'	20	0	0	0	9	"
196	1	31°42.5'	80°15.5'	13-1/2	0	0	0	0	Mar. 14
	2	31°41.0'	80°24.5'	12	0	0	0	0	"
	3	31°40.0'	80°34.0'	10	0	0	1	0	"
	4	31°38.5'	80°43.5'	9	0	0	0	0	"
	5	31°37.0'	80°52.5'	7	0	0	0	0	"
	6	31°35.5'	81°01.0'	5	0	0	2	0	"
197	1	31°31.0'	81°01.0'	5	0	0	0	0	Mar. 15
	2	31°27.5'	80°53.5'	7	0	0	0	0	"
	3	31°24.0'	80°44.0'	11	0	0	0	1	"
	4	31°20.5'	80°35.5'	15	0	0	0	1	"
	5	31°16.5'	80°27.0'	18	0	0	0	1	"
	6	31°13.0'	80°18.0'	20	0	0	0	0	"
	7	31°09.0'	80°09.0'	23	0	0	0	14	"
	8	31°03.5'	79°54.5'	50-100	0	0	0	1	"

Table 1. -- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P. set.	P. bras. group	Trac. sp.	Eus. sp.	Date 1940
198	1	31°00.5'	80°01.5'	40	0	0	0	21	Mar. 15
	2	30°58.5'	80°10.5'	22	0	0	0	16	"
	3	30°56.5'	80°19.5'	20	0	0	0	1	Mar. 16
	4	30°54.5'	80°28.5'	20	0	0	0	1	"
	5	30°52.0'	80°37.5'	17	0	0	0	1	"
	6	30°50.0'	80°46.5'	15	0	0	0	1	"
	7	30°48.0'	80°55.5'	12	0	0	0	1	"
	8	30°46.0'	81°04.5'	10	0	0	0	0	"
	9	30°44.0'	81°13.5'	7	0	0	0	0	"
	10	30°43.5'	81°22.5'	5	0	0	0	0	"
199	1	Jekyl Creek, Ga.		--	19	0	0	0	Mar. 25
	2	Mouth of Cumld. Riv., Ga.			5	0	0	0	"
	3	S. end Cumld. Riv., Ga.			16	1	0	0	"
200	1	30°44.0'	81°22.0'	6	11	0	24	1	Mar. 27
	2	30°41.5'	81°17.5'	6-1/2	0	0	7	0	"
	3	30°39.5'	81°13.5'	9	0	0	0	0	"
	4	30°37.0'	81°08.5'	11	0	0	0	0	"
	5	30°35.0'	81°04.0'	11	0	0	0	0	"
	6	30°31.0'	80°55.5'	14	0	0	0	0	"
	7	30°28.0'	80°50.5'	15	0	0	0	0	"
	8	30°26.0'	80°46.0'	17	0	0	0	5	"
	9	30°23.5'	80°41.0'	18	0	0	0	0	"
	10	30°21.0'	80°36.0'	19	0	0	0	0	"
	11	30°17.0'	80°27.5'	21	0	0	0	3	"
	12	30°12.5'	80°19.0'	25	0	0	0	0	"
201	1	30°06.5'	80°23.5'	26	0	0	0	1	"
	2	29°59.5'	80°31.0'	23	0	0	0	5	"
	3	29°53.5'	80°38.0'	19	0	0	2	2	"
	4	29°47.5'	80°45.0'	13	0	1	2	3	"
202	1	29°45.0'	80°48.5'	12	0	0	0	0	Mar. 28
	2	29°41.5'	80°52.0'	13	0	0	0	0	"
	3	29°38.5'	80°56.0'	12	0	0	0	0	"
	4	29°35.5'	80°59.5'	10	1	0	0	0	"
	5	29°32.0'	81°03.5'	11	0	0	0	0	"
	6	29°28.5'	81°04.5'	8	6	7	1	1	"
203	1	29°25.5'	81°00.5'	9	8	1	0	0	"
	2	29°23.0'	80°56.0'	8	0	0	0	0	"
	3	29°21.0'	80°51.0'	10	0	0	0	0	"
	4	29°18.5'	80°46.0'	13	0	0	0	0	"
	5	29°15.0'	80°37.0'	14	0	0	0	0	"
	6	29°10.5'	80°29.0'	15	0	0	0	0	"
204	1	29°06.5'	80°19.5'	18	0	0	0	1	Mar. 29
	2	29°03.0'	80°12.5'	30	0	0	1	6	"
	3	28°59.0'	80°04.0'	50-100	0	0	0	0	"

Table 1.-- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P. set.	P. bras. group	Trac. sp.	Eus. sp.	Date 1940
204	4	28°56.0'	80°01.5'	100	0	0	0	0	Mar. 29
	5	28°46.5'	80°08.0'	35	0	0	0	0	"
	6	28°39.0'	80°13.5'	20	0	0	0	0	"
	7	28°32.0'	80°19.0'	14	0	0	0	0	"
	8	28°24.0'	80°24.5'	9	1	0	0	0	"
	9	28°21.0'	80°23.5'	8	1	0	0	0	"
205	1	28°19.5'	80°19.5'	11	0	0	0	0	"
	2	28°16.5'	80°10.5'	21	0	0	0	2	"
	3	28°14.0'	80°02.5'	35	0	0	0	3	Mar. 30
	4	28°12.0'	79°57.0'	50-98	0	0	0	0	"
	5	28°08.0'	79°54.0'	100	0	0	0	0	"
	6	28°03.5'	79°55.5'	95-70	0	0	0	0	"
206A	1	28°04.5'	80°31.0'	9	0	0	0	0	Apr. 3
	2	28°07.5'	80°30.0'	10	0	0	0	0	"
	3	28°12.0'	80°31.5'	10	0	0	0	0	"
	4	28°15.5'	80°34.0'	8	0	0	0	0	"
	5	28°20.0'	80°34.0'	7	5	0	0	0	"
207	1	28°21.5'	80°33.5'	7	5	3	0	0	Apr. 4
	2	28°24.0'	80°34.5'	5	2	3	0	0	"
	3	28°24.0'	80°32.5'	6	3	0	0	0	"
	4	28°22.5'	80°31.5'	7	0	0	0	0	"
	5	28°22.0'	80°29.0'	8	0	0	0	0	"
	6	28°20.5'	80°27.0'	8-1/2	0	0	0	0	"
	7	28°22.5'	80°23.5'	8-1/2	0	0	0	0	"
	8	28°21.5'	80°21.5'	10	0	0	0	0	"
208	1	28°25.5'	80°22.0'	11	0	0	0	0	"
	2	28°29.5'	80°24.5'	9	0	0	0	1	"
	3	28°33.5'	80°27.5'	7	0	0	0	0	"
	4	28°37.5'	80°30.0'	8	0	0	0	0	"
	5	28°41.5'	80°32.5'	8-1/2	0	0	0	0	"
	6	28°45.5'	80°35.5'	9-1/2	0	0	0	0	"
	7	28°49.0'	80°38.0'	10-1/2	0	0	0	0	"
	8	28°53.0'	80°40.5'	10	0	0	0	0	"
	9	28°57.0'	80°43.0'	11	0	0	0	0	"
209	1	28°56.0'	80°49.0'	4	10	1	0	0	Apr. 5
	2	28°57.5'	80°47.5'	9	0	0	0	0	"
	3	28°58.0'	80°45.0'	11-1/2	0	0	0	0	"
	4	28°59.5'	80°43.5'	11	0	0	0	0	"
	5	29°00.5'	80°41.5'	9-1/2	0	0	0	0	"
210	1	28°59.5'	80°42.5'	9	0	0	0	0	"
	2	29°02.0'	80°47.0'	11	0	0	0	0	"
	3	29°04.0'	80°51.5'	10-1/2	0	0	0	0	"

Table 1.-- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P. set.	P. bras. group	Trac. sp.	Eus. sp.	Date 1940
211	1	29°05.5'	80°55.5'	7-1/2	41	1	2	0	Apr. 5
	2	29°08.0'	80°53.5'	10	0	0	0	0	"
	3	29°09.5'	80°52.5'	10	0	0	0	0	"
	4	29°07.0'	80°55.0'	9-1/2	16	14	13	0	"
	5	29°07.5'	80°55.0'	10	20	1	0	0	"
212	1	29°10.0'	80°57.5'	8-1/2	24	0	0	0	Apr. 6
	2	29°14.5'	80°59.5'	8-1/2	12	1	0	0	"
	3	29°18.5'	81°01.5'	8-1/2	6	3	0	0	"
	4	29°22.5'	81°03.5'	8-1/2	0	0	0	0	"
	5	29°27.0'	81°05.5'	8-1/2	1	0	2	0	"
213	1	29°28.0'	81°06.5'	5	1	0	0	0	Apr. 16
	2	29°29.5'	81°05.0'	10	0	0	0	0	"
	3	29°29.5'	81°02.5'	11	0	0	0	0	"
	4	29°33.5'	81°08.5'	8-1/2	0	0	0	0	"
	5	29°38.0'	81°10.5'	8-1/2	1	0	0	0	"
	6	29°43.0'	81°12.5'	7-1/2	0	0	0	0	"
	7	29°47.5'	81°13.5'	8	1	0	0	0	"
	8	29°52.0'	81°14.5'	6-1/2	0	0	0	0	"
214	1	29°55.0'	81°16.0'	5-1/2	0	0	0	1	"
	2	29°56.0'	81°14.0'	7	0	0	0	0	"
	3	29°54.5'	81°13.0'	7	0	0	0	0	"
	4	29°59.5'	81°17.5'	8	0	0	0	1	"
	5	30°04.0'	81°18.5'	8	0	0	0	0	"
	6	30°08.5'	81°20.0'	7	0	0	0	0	"
	7	30°13.5'	81°21.0'	7	0	0	0	0	Apr. 17
	8	30°18.5'	81°22.0'	6-1/2	0	0	0	0	"
	9	30°22.5'	81°22.0'	5-1/2	0	0	0	0	"
215	1	30°26.5'	81°23.0'	6	1	0	0	0	"
	2	30°26.0'	81°20.5'	8-1/2	1	0	0	0	"
	3	30°27.0'	81°18.0'	10	0	0	1	0	"
	4	30°31.0'	81°23.0'	7	0	0	0	0	"
	5	30°35.5'	81°23.0'	5	0	0	0	0	"
216	1	30°46.5'	81°27.0'	3-1/2	4	0	1	0	"
	2	30°45.5'	81°23.5'	5	0	0	0	0	"
	3	30°46.0'	81°21.0'	6	0	0	0	0	"
	4	30°50.5'	81°20.5'	5	0	0	1	0	"
	5	30°55.0'	81°19.0'	4	0	0	0	0	"
	6	30°59.0'	81°18.5'	4	0	0	0	0	"
	7	31°03.0'	81°17.5'	4	0	0	1	0	"
217	1	31°09.0'	81°17.0'	3-1/2	0	0	0	0	Apr. 18
	2	31°07.5'	81°16.0'	5	0	0	0	0	"
	3	31°06.5'	81°16.0'	5	0	0	0	0	"
	4	31°10.5'	81°14.5'	5	0	0	1	0	"

Table 1.-- (Continued)

Station	Haul	Lat. N.	Long. W.	Fathoms depth	P.set.	P.bras. group	Trac. sp.	Eus. sp.	Date 1940
217	5	31°14.0'	81°13.0'	3-1/2	0	0	0	0	Apr. 18
	6	31°18.0'	81°12.0'	4	0	0	0	0	"
218	1	31°25.5'	81°12.5'	2	0	0	0	0	"
	2	31°23.0'	81°10.5'	3-1/2	0	0	0	0	"
	3	31°22.5'	81°08.0'	6	0	0	0	0	"
	4	31°26.0'	81°06.0'	4-1/2	0	0	0	0	"
	5	31°30.0'	81°04.0'	4-1/2	0	0	0	0	"

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